

Name: _____ TP: _____

Failure to show work on all problems or use complete sentences will result in a LaSalle.

example:

1) Simplify

$$-3\sqrt{18} - 3\sqrt{27} - 2\sqrt{8}$$

$$-3 \cdot \sqrt{18} - 3 \cdot \sqrt{27} - 2 \cdot \sqrt{8} \quad \boxed{-13\sqrt{2} - 9\sqrt{3}}$$

$$\begin{array}{ccccccc} (-3) \cdot \sqrt{9 \cdot 2} & (-3) \cdot \sqrt{9 \cdot 3} & (-2) \cdot \sqrt{4 \cdot 2} & & & & \\ \downarrow & \downarrow & \downarrow & & & & \\ -3 \cdot 3 \sqrt{2} & -3 \cdot 3 \sqrt{3} & -2 \cdot 2 \sqrt{2} & & & & \\ -9\sqrt{2} & -9\sqrt{3} & -4\sqrt{2} & & & & \end{array}$$

2) Simplify

$$2\sqrt{12} + 3\sqrt{27} - 2\sqrt{20}$$

$$2 \cdot \sqrt{4 \cdot 3} + 3 \cdot \sqrt{9 \cdot 3} - 2 \cdot \sqrt{4 \cdot 5}$$

$$2 \cdot \sqrt{4} \sqrt{3} + 3 \cdot \sqrt{9} \sqrt{3} - 2 \cdot \sqrt{4} \sqrt{5}$$

3) Simplify

$$-2\sqrt{36} + 2\sqrt{54} - 2\sqrt{24}$$

$$-2 \cdot \sqrt{36} + 2 \cdot \sqrt{54} - 2 \cdot \sqrt{24}$$

$$-2 \cdot \sqrt{6 \cdot 6} + 2 \cdot \sqrt{9 \cdot 6} - 2 \cdot \sqrt{4 \cdot 6}$$

4) Simplify

$$-2\sqrt{72} - 3\sqrt{18} + 2\sqrt{8}$$

$$-2 \cdot \sqrt{36 \cdot 2} - 3 \cdot \sqrt{9 \cdot 2} + 2 \cdot \sqrt{4 \cdot 2}$$

 5) Simplify: $\sqrt{18mr^2} \cdot 2\sqrt{mr}$

$$\sqrt{18} \cdot \sqrt{m} \cdot \sqrt{r^2} \cdot 2 \cdot \sqrt{m} \cdot \sqrt{r}$$

$$2 \cdot \sqrt{18} \cdot \sqrt{m \cdot m} \cdot \sqrt{r^2} \cdot \sqrt{r}$$

$$2 \cdot \sqrt{18} \cdot \sqrt{m^2} \cdot \sqrt{r^2} \cdot \sqrt{r}$$

$$\downarrow \quad \downarrow \quad \downarrow \quad \downarrow$$

$$2 \cdot 3 \cdot m \cdot r \cdot \sqrt{r}$$

 6) Simplify: $(2 - \sqrt{5})^2$

$$(2 - \sqrt{5})(2 - \sqrt{5})$$

 7) Simplify: $\frac{2}{\sqrt{3x^3}}$

example:

$$\frac{2}{\sqrt{3x^3}} \cdot \frac{\sqrt{3x^3}}{\sqrt{3x^3}} = \frac{2\sqrt{3x^3}}{3x^3}$$

8) Simplify:

$$\frac{2\sqrt{5}}{4\sqrt{80}} \cdot \frac{\sqrt{80}}{\sqrt{80}} = \frac{2\sqrt{40}}{4\sqrt{80}}$$

9) Convert scientific notation into standard notation

$$7.24 \times 10^{-9}$$


 Negative means smaller
Smaller means LEFT

10) Convert scientific notation into standard notation

$$2.76 \times 10^6$$


 Positive means bigger
Bigger means right

Mixed Review

11) Line ℓ and line ℓ' are parallel. Given that the equation for line ℓ' is $4x=2$ and line ℓ passes through the point $(0,7)$, what is the equation for line ℓ ?

parallel = same slope
line: $y = mx + b$
↑
slope

12) What is the equation for the line perpendicular to $6x=6y+9$ and through the point $(3,9)$?

perpendicular = opp/inverse slope
line: $y = mx + b$
↑
slope

13) Point m is the midpoint to line segment BC . Point C has the coordinates $(6,3)$ and point B has the coordinate $(-6,5)$, what are the coordinates for point m ?

midpoint: $\left(\frac{x_1 + x_2}{2}, \frac{y_1 + y_2}{2} \right)$

14) On a number line, point A is at -8 and point B is at -14 . What is the coordinate of the midpoint, m ?

15) What is the slope of the line that passes through the points $(-5,2)$ and $(8,4)$ in the standard coordinate plane?

slope = $m = \frac{\text{rise}}{\text{run}} = \frac{y_2 - y_1}{x_2 - x_1}$

16) Write the equation of the line that passes through the points $(3,4)$ and $(0,5)$?

$y = mx + b$
1. find slope
2. plug in (x,y)
3. find b .
4. re-write as $y = mx + b$